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10/559,907	12/08/2005	Faqiang Guo	126880.0137	9522

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EXAMINER	
CHEN, CHRISTINE	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/559,907	GUO ET AL.	
	Examiner	Art Unit	
	CHRISTINE CHEN	4116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 December 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application

1. Claims 1-14 are pending and presented for examination.

Priority

2. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged.

Drawings

1. The drawings are objected to because the lines on Figures 3 and 4 are not labeled. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 13 is dependent on claim 10. In claim 10, the atomic % of Mg is 5-15. In claim 13, the atomic % of Mg is 0-20.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1–7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seiki (JP59060233 hereinafter A1).

In regards to claim 1, Seiki (A1) discloses (abstract) an amorphous alloy with a composition as shown in Table 1.

Table 1: Comparison between instant claim and Seiki (A1)

Element	From Instant Claim (atomic %)	Seiki (A1, abstract) (atomic %)	Overlapping range
Ca	45-75	50-80	50-75
Al	5-35	20-45	20-35

Cu	0-15	0	0
Ag	0-20	0	0
Zn	0-20	0	0
Mg	0-20	0	0
Ni	0-20	0	0

The ranges disclosed by Seiki (A1) for Ca, Al, Cu, Ag, Zn, Mg and Ni are within the ranges of the instant invention, which is a prima facie case of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time of the invention to select the claimed amorphous alloy composition from that disclosed by Seiki (A1) because Seiki (A1) teaches the same utility throughout the disclosed ranges.

In regards to claim 2, as seen in the response to claim 1 of the instant invention, Seiki (A1) discloses an amorphous alloy in which r is 0.

In regards to claim 3, the ability to process the alloy into a certain shape is dependent on the alloy composition. Being that Seiki (A1) discloses an alloy with the claimed composition, Seiki's (A1) alloy would also possess this ability. It is inherent.

In regards to claim 4, similar to the response of claim 3, the glass transition temperature Tg is dependent on the alloy composition. Being that Seiki (A1) discloses an alloy with the claimed composition, Seiki's (A1) alloy would also possess this ability. This is inherent.

In regards to claim 5, as seen in the response to claim 1 of the instant invention, Seiki (A1) discloses an amorphous alloy which meets the limitations of the instant claim.

In regards to claim 6, as seen in the response to claim 1 of the instant invention, Seiki (A1) discloses an amorphous alloy which meets the limitations of the instant claim.

In regards to claim 7, as seen in the response to claim 1 of the instant invention, Seiki (A1) discloses an amorphous alloy which meets the limitations of the instant claim.

3. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kogyo (EP0361136 hereinafter A2) in view of Grasselli (US 4,902,579 hereinafter A3).

In regards to claim 8, Kogyo (A2) discloses alloys which are at least 50% by volume composed of an amorphous phase, including one which has a composition (abstract) as shown in Table 2.

Table 2: Comparison between instant claim and Kogyo (A2)

Element	From Instant Claim (atomic %)	Kogyo (A2, abstract) (atomic %)	Overlapping Range
Ca	50-60	2-25	None
Al	5-15	2-25	5-15
Cu or Ni	0-10	4-35	4-10
Zn	10-20	4-35	10-20

Mg	10-15	40-90	None

The ranges disclosed by Kogyo (A2) for Al, Cu or Ni, and Zn are within the ranges of the instant invention, which is a prima facie case of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time of the invention to select the claimed amorphous alloy composition from that disclosed by Kogyo (A2) because Kogyo (A2) teaches the same utility throughout the disclosed ranges for these elements.

Although there is no overlapping range for Ca and Mg, Kogyo (A2) does disclose the presence of these elements within the alloy. In addition, Grasselli (A3) teaches an amorphous alloy in which the range of atomic percent of Ca and Mg are 8-95 (abstract), which overlap with the instant claim from 5—60 for Ca and 10-15 for Mg. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kogyo (A2) with the atomic percent of Ca and Mg by Grasselli (A3) because the same utility is taught by both pieces of prior art. In absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those of ordinary skill in the art. In re Austin, et al., 149 USPQ 685,688.

In regards to claim 9, as seen in the response to claim 8 of the instant invention, Kogyo (A2) in view of Grasselli (A3) support a prima facie case of obviousness for the alloy. In the alternative, the selection of the proportions of elements would appear to require no more than routine investigation by those of ordinary skill in the art. In re Austin, et al., 149 USPQ 685,688.

In regards to claim 10, a comparison between the instant claim and the alloy (abstract) taught by Kogyo (A2) as described in a response to claim 8 is shown in Table 3.

Table 3: Comparison between instant claim and Kogyo (A2)

Element	From Instant Claim (atomic %)	Kogyo (A2, abstract) (atomic %)	Overlapping range
Ca	45-65	2-25	None
Al	5-35	2-25	5-25
Cu	0-20	4-35	4-20
Ag	0-20	0	0
Zn	0-20	4-35	4-20
Mg	5-15	40-90	None
Ni	0-10	4-35	4-10

Similar to the response to claim 8, the ranges disclosed by Kogyo (A2) for Al, Cu, Ni, Ag, and Zn are within the ranges of the instant invention, which is a prima facie case of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time of the invention to select the claimed amorphous alloy composition from that disclosed by Kogyo (A2) because Kogyo (A2) teaches the same utility throughout the disclosed ranges for these elements.

Although there is no overlapping range for Ca and Mg, Kogyo (A2) does disclose the presence of these elements within the alloy. In addition, Grasselli

(A3) teaches an amorphous alloy in which the range of atomic percent of Ca and Mg are 8-95 (abstract), which overlap with the instant claim from 45-65 for Ca and 5-15 for Mg. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kogyo (A2) with the atomic percent of Ca and Mg by Grasselli (A3) because the same utility is taught by both pieces of prior art. In absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those of ordinary skill in the art. In re Austin, et al., 149 USPQ 685,688.

In regards to claim 11, a comparison between the instant claim and the alloy (abstract) taught by Kogyo (A2) as described in a response to claim 8 is shown in Table 4.

Table 4: Comparison between instant claim and Kogyo (A2)

Element	From Instant Claim (atomic %)	Kogyo (A2, abstract) (atomic %)	Overlapping range
Al	5-15	2-25	5-15
Cu	0-15	4-35	4-15
Ag	0	0	0
Zn	10-20	4-35	10-20
Mg	10-15	40-90	None
Ni	0-10	4-35	4-10
Ca	50-65	2-25	None

Similar to the response to claim 8, the ranges disclosed by Kogyo (A2) for Al, Cu, Ni, Ag, and Zn are within the ranges of the instant invention, which is a prima facie case of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time of the invention to select the claimed amorphous alloy composition from that disclosed by Kogyo (A2) because Kogyo (A2) teaches the same utility throughout the disclosed ranges for these elements.

Although there is no overlapping range for Ca and Mg, Kogyo (A2) does disclose the presence of these elements within the alloy. In addition, Grasselli (A3) teaches an amorphous alloy in which the range of atomic percent of Ca and Mg are 8-95 (abstract), which overlap with the instant claim from 45-65 for Ca and 5-15 for Mg. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kogyo (A2) with the atomic percent of Ca and Mg by Grasselli (A3) because the same utility is taught by both pieces of prior art. In absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those of ordinary skill in the art. In re Austin, et al., 149 USPQ 685,688.

In regards to claim 12, the atomic percentages of Ca, Al, Cu or Ni, Zn, and Mg are the same as or narrower than those disclosed in claim 11, and so the same rejection is applicable.

In regards to claim 13, the atomic percentages of Ca, Al, Cu, Ag, and Zn are the same as or narrower than those disclosed in claim 10. The atomic

percentage of Mg is broadened to 0-20, however the same rejection as claim 10 is applicable.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thorpe (US 5,429,725 hereinafter A4) in view of Le Caér (US 4,595,429 hereinafter A5).

Thorpe (A4) discloses the process of producing an amorphous alloy in which the elements are charged into a boron nitride ceramic crucible and then heated (col. 7, li. 17-20). In addition, the placement of all the elements of the alloy, except Cu and Ag, prior to that of Cu and Ag is not novel. See MPEP 2144.04.

Furthermore, Le Caér (A5) discloses a CaAl-based amorphous alloy comprising Cu, in which "the alloys according to the invention can be produced by means of known methods" (abstract). Therefore, it would have been obvious to one of ordinary skill in the art to modify Thorpe (A4) with the particular alloy taught by Le Caér (A5).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE CHEN whose telephone number is (571)270-3590. The examiner can normally be reached on Monday-Friday 8:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CC

/Vickie Kim/
Supervisory Patent Examiner, Art Unit 4116